REMARKS

To expedite allowance we have cancelled claims 33-38 and 40-54. Applicant reserves the right to pursue the subject matter of the cancelled claims in a subsequent continuation application. Following the amendment, claims 1-32 and 39 are pending, with claims 1 and 39 being independent claims.

Claim 1 stands rejected as obvious over Groot (U.S. 6,359,692) in view of Suematsu (Applied Optics 30:4046-4055, 1991). The rejection is based on "applying the analysis of Suematsu at each spatial location of the interferometry data of Groot" (page 10 of action). Even if such application of Suematsu were permissible, which we do not concede, the proposed combination still fails to teach or suggest "extracting the phase of the frequency transform at each of the frequencies of corresponding to the selected pairs of surfaces," as recited in claim 1 (emphasis added).

To the contrary, Suematsu disregards this phase. For example, while Suematsu selects a particular peak, $C(f-f_s)$, in the Fourier spectra of Fig. 1, he fails to extract the phase of the $C(f-f_s)$. Instead, he transforms the peak back to the time domain (see Eq. 14). Furthermore, he eliminates any information about the phase of the frequency transform inherent in that time domain signal when he differentiates the imaginary part of the log of that time domain signal in Eq. 19 (see, also Eqs.15 and 16). Indeed, immediately prior to Eq. 19, Suematsu specifically states "[t]o eliminate the unknown constant phases ϕ_0 and ϕ_{R0}, we differentiate the phases and obtain instantaneous angular frequencies" (emphasis added). Clearly, Suematsu is not interested in the phase of the frequency transform at the frequency corresponding to each pair of surfaces as required by the claim (e.g., the offset phase ϕ_0), but in some instantaneous frequency that specifically eliminates ϕ_0.

Although the action at page 12 points to the left column of page 4048 of Suematsu as emphasizing a phase $\varphi(t)$ - that phase relates to a time-varying phase of the interference signal in the time domain. For example, $\varphi(t)$ explicitly includes the frequency of the interference

signal (see Eq. 7). It is therefore fundamentally different from "the phase of the frequency transform at each of the frequencies of corresponding to the selected pairs of surfaces," recited in claim 1.

Therefore we ask the Examiner to withdraw the rejection of claim 1.

Like claim 1, independent claim 39 recites an electronic processor that "extracts the phase of the frequency transform at each of the frequencies of corresponding to the selected pairs of surfaces." Therefore, we ask the Examiner to withdraw the rejection of claim 39 for the same reasons as those set forth above for claim 1.

We submit that all remaining claims (all of which depend on claim 1) are allowable for at least the reasons set forth above.

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